

SEQ ID NO. 1

SEQUENCE TYPE: Nucleic Acid
SEQUENCE LENGTH: 1207 Base Pairs

STRANDEDNESS: Double or Single
TOPOLOGY: Linear
MOLECULAR TYPE: DNA or cDNA from mRNA

ORIGINAL SOURCE: -
ORGANISM: Human
IMMEDIATE EXPERIMENTAL SOURCE: Embryo Tissue

PROPERTIES: Sequence Coding for Human TGF- β -like Protein (MP-52)

ACCGGGCGGC CCTGAACCCA AGCCAGGACA CCCTCCCCAA ACAAGGCAGG CTACAGCCCG 60
GACTGTGACC CCAAAGGAC AGCTTCCCGG AGGCAAGGCA CCCCCAAAAG CAGGATCTGT 120
CCCCAGCTCC TTCCTGCTGA AGAAGGCCAG GGAGCCCGGG CCCCCACGAG AGCCCAAGGA 180
GCCGTTTCGC CCACCCCCCA TCACACCCCA CGAGTACATG CTCTCGCTGT ACAGGACGCT 240
GTCCGATGCT GACAGAAAGG GAGGCAACAG CAGCGTGAAG TTGGAGGCTG GCCTGGCCAA 300
CACCATCACC AGCTTTATTG ACAAAGGGCA AGATGACCGA GGTCCCGTGG TCAGGAAGCA 360
GAGGTACGTG TTTGACATTA GTGCCCTGGA GAAGGATGGG CTGCTGGGGG CCGAGCTGCG 420
GATCTTGCGG AAGAAGCCCT CGGACACGGC CAAGCCAGCG GCCCCCGGAG GCGGGCGGGC 480
TGCCCAGCTG AAGCTGTCCA GCTGCCCCAG CGGCCGGCAG CCGGCCTCCT TGCTGGATGT 540
GCGCTCCGTG CCAGGCCTGG ACGGATCTGG CTGGGAGGTG TTCGACATCT GGAAGCTCTT 600
CCGAAACTTT AAGAACTCGG CCCAGCTGTG CCTGGAGCTG GAGGCCTGGG AACGGGGCAG 660
GGCCGTGGAC CTCCGTGGCC TGGGCTTCGA CCGCGCCGCC CGGCAGGTCC ACGAGAAGGC 720
CCTGTTCTTG GTGTTTGGCC GCACCAAGAA ACGGGACCTG TTCTTTAATG AGATTAAGGC 780
CCGCTCTGGC CAGGACGATA AGACCGTGTA TGAGTACCTG TTCAGCCAGC GGCGAAAACG 840
GCGGGCCCCA CTGGCCACTC GCCAGGGCAA GCGACCCAGC AAGAACCTTA AGGCTCGCTG 900
CAGTCGGAAG GCACTGCATG TCAACTTCAA GGACATGGGC TGGGACGACT GGATCATCGC 960
ACCCCTTGAG TACGAGGCTT TCCACTGCGA GGGGCTGTGC GAGTCCCAT TGCGCTCCCA 1020
CCTGGAGCCC ACGAATCATG CAGTCATCCA GACCCTGATG AACTCCATGG ACCCCGAGTC 1080
CACACCACCC ACCTGCTGTG TGCCACGCG GCTGAGTCCC ATCAGCATCC TCTTCATTGA 1140
CTCTGCCAAC AACGTGGTGT ATAAGCAGTA TGAGGACATG GTCGTGGAGT CGTGTGGCTG 1200
CAGGTAG 1207

09901555-092499

SEQ ID NO.2

SEQUENCE TYPE: Nucleic Acid
SEQUENCE LENGTH: 2272 Base Pairs

STRANDEDNESS: Double or Single
TOPOLOGY: Linear
MOLECULAR TYPE: cDNA from mRNA

ORIGINAL SOURCE: -
ORGANISM: Human
IMMEDIATE EXPERIMENTAL SOURCE: Liver Tissue

PROPERTIES: Sequence Coding for Human TGF- β -like Protein (MP-121)




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CAAGGAGCCA	TGCCAGCTGG	ACACACACTT	CTTCCAGGGC	CTCTGGCAGC	CAGGACAGAG	60
TTGAGACCAC	AGCTGTTGAG	ACCCTGAGCC	CTGAGTCTGT	ATTGCTCAAG	AAGGGCCTTC	120
CCCAGCAATG	ACCTCCTCAT	TGCTTCTGGC	CTTTCTCCTC	CTGGCTCCAA	CCACAGTGGC	180
CACTCCCAGA	GCTGGCGGTC	AGTGTCCAGC	ATGTGGGGGG	CCCACCTTGG	AACTGGAGAG	240
CCAGCGGGAG	CTGCTTCTTG	ATCTGGCCAA	GAGAAGCATC	TTGGACAAGC	TGCACCTCAC	300
CCAGCGCCCA	AACTGAACC	GCCCTGTGTC	CAGAGCTGCT	TTGAGGACTG	CACTGCAGCA	360
CCTCCACGGG	GTCCCACAGG	GGGCACTTCT	AGAGGACAAC	AGGGAACAGG	AATGTGAAAT	420
CATCAGCTTT	GCTGAGACAG	GCCTCTCCAC	CATCAACCAG	ACTCGTCTTG	ATTTTCACTT	480
CTCCTCTGAT	AGAACTGCTG	GTGACAGGGA	GGTCCAGCAG	GCCAGTCTCA	TGTTCTTTGT	540
GCAGCTCCCT	TCCAATACCA	CTTGGACCTT	GAAAGTGAGA	GTCCCTGTGC	TGGGTCCACA	600
TAATACCAAC	CTCACCTTGG	CTACTCAGTA	CCTGCTGGAG	GTGGATGCCA	GTGGCTGGCA	660
TCAACTCCCC	CTAGGGCCTG	AAGCTCAAGC	TGCCTGCAGC	CAGGGGCACC	TGACCCTGGA	720
GCTGGTACTT	GAAGGCCAGG	TAGCCCAGAG	CTCAGTCATC	CTGGGTGGAG	CTGCCCATAG	780
GCCTTTTGTG	GCAGCCCCGG	TGAGAGTTGG	GGGCAAACAC	CAGATTCACC	GACGAGGCAT	840
CGACTGCCAA	GGAGGGTCCA	GGATGTGCTG	TCGACAAGAG	TTTTTTGTGG	ACTTCCGTGA	900
GATTGGCTGG	CACGACTGGA	TCATCCAGCC	TGAGGGCTAC	GCCATGAACT	TCTGCATAGG	960
GCAGTGCCCA	CTACACATAG	CAGGCATGCC	TGGTATTGCT	GCCTCCTTTC	AACTGCAGT	1020
GCTCAATCTT	CTCAAGGCCA	ACACAGCTGC	AGGCACCACT	GGAGGGGGCT	CATGCTGTGT	1080
ACCCACGGCC	CGGCGCCCCC	TGTCTCTGCT	CTATTATGAC	AGGGACAGCA	ACATTGTCAA	1140
GA CTGACATA	CCTGACATGG	TAGTAGAGGC	CTGTGGGTGC	AGTTAGTCTA	TGTGTGGTAT	1200
GGGCAGCCCA	AGGTTGCATG	GGAAAACACG	CCCCTACAGA	AGTGCACTTC	CTTGAGAGGA	1260
GGGAATGACC	TCATTCTCTG	TCCAGAATGT	GGACTCCCTC	TTCTGAGCA	TCTTATGGAA	1320
ATTACCCAC	CTTTGACTTG	AAGAAACCTT	CATCTAAAGC	AAGTCACTGT	GCCATCTTCC	1380
TGACCACTAC	CCTCTTTCCT	AGGGCATAGT	CCATCCCCTG	AGTCCATCCC	GCTAGCCCCA	1440

CTCCAGGGAC	TCAGACCCAT	CTCCAACCAT	GAGCAATGCC	ATCTGGTTCC	CAGGCAAAGA	1500
CACCCTTAGC	TCACCTTTAA	TAGACCCCAT	AACCCACTAT	GCCTTCCTGT	CCTTTCTACT	1560
CAATGGTCCC	CACTCCAAGA	TGAGTTGACA	CAACCCCTTC	CCCCAATTTT	TGTGGATCTC	1620
CAGAGAGGCC	CTTCTTTGGA	TTCACCAAAG	TTTAGATCAC	TGCTGCCCAA	AATAGAGGCT	1680
TACCTACCCC	CCTCTTTGTT	GTGAGCCCCT	GTCCTTCTTA	GTTGTCCAGG	TGAACTACTA	1740
AAGCTCTCTT	TGCATACCTT	CATCCATTTT	TTGTCCTTCT	CTGCCTTTCT	CTATGCCCTT	1800
AAGGGGTGAC	TTGCCTGAGC	TCTATCACCT	GAGCTCCCCT	GCCCTCTGGC	TTCCTGCTGA	1860
GGTCAGGGCA	TTTCTTATCC	CTGTTCCCTC	TCTGTCTAGG	TGTCATGGTT	CTGTGTA ACT	1920
GTGGCTATTC	TGTGTCCCTA	CACTACCTGG	CTACCCCCTT	CCATGGCCCC	AGCTCTGCCT	1980
ACATTCTGAT	TTTTTTTTTT	TTTTTTTTTT	TGAAAAGTTA	AAAATTCCTT	AATTTTTTAT	2040
TCCTGGTACC	ACTACCACAA	TTTACAGGGC	AATATACCTG	ATGTAATGAA	AAGAAAAAGA	2100
AAAAGACAAA	GCTACAACAG	ATAAAAGACC	TCAGGAATGT	ACATCTAATT	GACACTACAT	2160
TGCATTAATC	AATAGCTGCA	CTTTTTTGCA	ACTGTGGCTA	TGACAGTCCT	GAACAAGAAG	2220
GGTTTCCTGT	TTAAGCTGCA	GTAACTTTTC	TGACTATGGA	TCATCGTTCC	TT	2272

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PGGPEPKPGH	PPQTRQATAR	TVTPKGQLPG	GKAPPKAGSV	PSSFLLKKAR	EPGPPREPKE	60
PFRPPPITPH	EYMLSLYRTL	SDADRKGKNS	SVKLEAGLAN	TITSFIDKGQ	DDRGPVVRKQ	120
RYVFDISALE	KDGLLGAEELR	ILRKPSDTA	KPAAPGGGRA	AQLKLSSCPS	GRQPASLLDV	180
RSVPGLDGS	WEVFDIWKLF	RNFKNSAQLC	LELEAWERGR	AVDLRGLGFD	RAARQVHEKA	240
LFLVFGRTKK	RDLFFNEIKA	RSQGDDKTVY	EYLFSQRRKR	RAPLATRQ GK	RPSKNLKARC	300
SRKALHVNFK	DMGWDDWIIA	PLEYEAHFCE	GLCEFPLRSH	LEPTNHAVIQ	TLMNSMDPES	360
TPPTCCVPTR	LSPISILFID	SANNVVYKOY	EDMVVESC GC	R		401

SEQ ID NO. 4

SEQUENCE TYPE: Amino Acid
SEQUENCE LENGTH: 352 Amino Acids

ORIGINAL SOURCE: -
ORGANISM: Human

PROPERTIES: Human TGF- β -like Protein (MP-121)

MTSSLLLAFL	LLAPTTVATP	RAGGQCPACG	GPTLELESQR	ELLLDLAKRS	ILDKLHLTQR	60
PTLNRPVSRA	ALRTALQHLH	GVPQGALLED	NREQECEIIS	FAETGLSTIN	QTRLDFHFSS	120
DRTAGDREVQ	QASLMFFVQL	PSNTTWTCLKV	RVLVLGPHNT	NLTLATQYLL	EVDASGWHQL	180
PLGPEAQAAC	SQGHLTLELV	LEGQVAQSSV	ILGGAHRPF	VAARVRVGGK	HQIHRRGIDC	240
QGGSRMCCRQ	EFFVDFREIG	WHDWIIQPEG	YAMNFCIGQC	PLHIAGMPGI	AASFHTAVLN	300
LLKANTAAGT	TGGGSCCVPT	ARRPLSLLYY	DRDSNIVKTD	IPDMVVEACG	CS	352

09501556-092499

SEQ ID NO. 5

SEQUENCE TYPE: Nucleic Acid
SEQUENCE LENGTH: 265 Base Pairs

STRANDEDNESS: Double or Single
TOPOLOGY: Linear
MOLECULAR TYPE: cDNA from mRNA

ORIGINAL SOURCE: -
ORGANISM: Human
IMMEDIATE EXPERIMENTAL SOURCE: Liver Tissue

PROPERTIES: Sequence coding for a Part of the Mature Human TGF- β -like Protein
(MP-121)

CATCCAGCCT GAGGGCTACG CCATGAACTT CTGCATAGGG CAGTGCCCAC TACACATAGC	60
AGGCATGCCT GGTATTGCTG CCTCCTTTCA CACTGCAGTG CTCAATCTTC TCAAGGCCAA	120
CACAGCTGCA GGCACCACTG GAGGGGGCTC ATGCTGTGTA CCCACGGCCC GCGCCCCCT	180
GTCTCTGCTC TATTATGACA GGGACAGCAA CATTGTCAAG ACTGACATAC CTGACATGGT	240
AGTAGAGGCC TGTGGGTGCA GTTAG	265

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SEQ ID NO. 6

SEQUENCE TYPE: Nucleic Acid
SEQUENCE LENGTH: 139 Base Pairs

STRANDEDNESS: Double or Single
TOPOLOGY: Linear
MOLECULAR TYPE: cDNA from mRNA

ORIGINAL SOURCE: -
ORGANISM: Human
IMMEDIATE EXPERIMENTAL SOURCE: Embryo Tissue

PROPERTIES: Sequence Coding for a Part of the Mature Human TGF- β -like Protein (MP-52)

CATCGCACCC CTTGAGTACG AGGCTTTCCA CTGCGAGGGG CTGTGCGAGT TCCCATTGCG	60
CTCCCACCTG GAGCCCACGA ATCATGCAGT CATCCAGACC CTGATGAACT CCATGGACCC	120
CGAGTCCACA CCACCCACC	139

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Figure 1a

	10	20	30	40	50	
MP 52	CSRKALHVN	F KDMGWDDWII	APLEYEAFHC	EGLCEFPLRS	HLEPTINHAVI	
BMP 2	CKRHPLYVDF	SDVGWNDWIV	APPGYHAFYC	HGECPFPLAD	HLNSTINHAIV	
BMP 4	CRRHSLYVDF	SDVGWNDWIV	APPGYQAFYC	HGDCPFPLAD	HLNSTINHAIV	
BMP 5	CKKHELYVSF	RDLGWQDWII	APEGYAAFYC	DGECSFPLNA	HMNATNHAIV	
BMP 6	CKKHELYVSF	QDLGWQDWII	APKGYAANYC	DGECSFPLNA	HMNATNHAIV	
BMP 7	CKKHELYVSF	RDLGWQDWII	APEGYAAAYC	EGECAFPPLNS	YMNATNHAIV	
	* +	* * *	* * * * *	* * * * *	* * * * *	* * * * *
	60	70	80	90	100	
MP 52	QTLMNSMDPE	STPPTCCVPT	RLSPISILFI	DSANNVVYKQ	YEDMVVESCG	CR
BMP 2	QTLVNSVNS-	KIPKACCVPT	ELSAISMPLYL	DENEKVVLKN	YQDMVVEGCG	CR
BMP 4	QTLVNSVNS-	SIPKACCVPT	ELSAISMPLYL	DEYDKVVLKN	YQEMVVEGCG	CR
BMP 5	QTLVHLMFPD	HVPKPCCAPT	KLNAISVLYF	DDSSNVILKK	YRNMVVRSCG	CH
BMP 6	QTLVHLMNPE	YVPKPCCAPT	KLNAISVLYF	DDNSNVILKK	YRNMVVRACG	CH
BMP 7	QTLVHFINPE	TVPKPCCAPT	QLNAISVLYF	DDSSNVILKK	YRNMVVRACG	CH
	***	+++ ++ + *	*****	*+ ** *	* ++* *	* +***** *

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Figur 1b

	10	20	30	40
MP121	CCRQEFFVDF	REIGWHDWII	QPEGYAMNFC	IGQCPLHIA G
InhibβA	CCKKQFFVSF	KDIGWNDWII	APSGYHANYC	EGECPSHIA G
InhibβB	CCRQQFFIDF	RLIGWNDWII	APTGYYGNYC	EGSCPAYLAG
Inhiba	CHRV ALN ISF	QELGW ERWIV	YPPSFIFHYC	HGGCGLHIP -
	* + + +	+ + + + *	+ + + + *	* + + + + + +

	50	60	70	80
MP121	MPGIAASFHT	AVLNLLKANT	AAGTTGGGSC	C - - VPTARRP
InhibβA	TSGSSLSFHS	TVINH YRMRG	HSPFANLKSC	C - - VPTKL RP
InhibβB	VPGSASSFHT	AVVNQYRMRG	LNP - GTVNSC	C - - IPTKLST
Inhiba	- - - PNL SLPV	PGAPPTPAQP	YSLLPGAQPC	CAALPGTMRP
	+ + +	+ + + + +	+ + + + +	+ + + + +

	90	100	110
MP121	LSLLYYDRDS	NIVKTD - IPD	MVVEACGCS
InhibβA	MSMLYYDDGQ	NI IKKD - IQN	MIVEECGCS
InhibβB	MSMLYFDDEY	NIVKRD - VP N	MIVEECGCA
Inhiba	LHVRTTSDGG	YSFKYETVP N	LLTQHCACI
	+ + + + +	+ + + + +	+ + + + +

Figure 2a

Eco RI Nco I

OD	ATGAATTCCCATGGACCTGGGCTGGMAKGAMTGGAT
BMP 2	ACGTGGGGTGGGAATGACTGGAT
BMP 3	ATATTGGCTGGAGTGAATGGAT
BMP 4	ATGTGGGCTGGGAATGACTGGAT
BMP 7	ACCTGGGCTGGCAGGACTGGAT
TGF- β 1	AGGACCTCGGCTGGAAGTGGAT
TGF- β 2	GGGATCTAGGGTGGAAATGGAT
TGF- β 3	AGGATCTGGGCTGGAAGTGGGT
inhibin α	AGCTGGGCTGGGAACGGTGGAT
inhibin β_A	ACATCGGCTGGAATGACTGGAT
inhibin β_B	TCATCGGCTGGAACGACTGGAT

Figure 2b

Eco RI

OID	ATGAATTGAGCTGCGTSGGSRACAGCA
BMP 2	GAGTTCTGTGGGACACAGCA
BMP 3	CATCTTTTCTGGTACACAGCA
BMP 4	CAGTTCAGTGGGCACACAACA
BMP 7	GAGCTGCGTGGGCGCACAGCA
TGF- β 1	CAGCGCCTGCGGCACGCAGCA
TGF- β 2	TAAATCTTGGGACACGCAGCA
TGF- β 3	CAGGTCTTGGGGCACGCAGCA
inhibin α	CCCTGGGAGAGCAGCACAGCA
inhibin β_A	CAGCTTGGTGGGCACACAGCA
inhibin β_B	CAGCTTGGTGGGAATGCAGCA